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PATENT

IN THE SPECIFICATION

Please amend the specification as follows.

1. Please amend the paragraph starting on page 1, line 1 of the application as follows:

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The present invention relates to a method of determining filter coefficients from Line Spectral Frequencies (LSFs) comprising recomputing $P(z)$ and $Q(z)$ polynomials and comprising calculating the ω_i coefficients.

2. Please amend the paragraph starting on page 3, line 13 of the application as follows:

B2

Recomputing LPC filter coefficients a_i from LSFs is much less computationally intensive than computing the LSFs from the filter coefficients. In step 210 of Fig. 2, each ~~Each~~ LSF ω_i, $i = 0,1,\ldots,m-1$ contributes to a quadratic factor of the form, $1 - 2\cos(\omega_i)z^{-1} + z^{-2}$. The polynomials $P'(z)$ and $Q'(z)$ are formed in step 220 by multiplying these factors using the LSFs that come from the corresponding polynomial:

$$P'(z) = \prod_{i=0}^{m_p-1}(1 - 2\cos(\omega_{2i})z^{-1} + z^{-2})$$

$$Q'(z) = \prod_{i=1}^{m_q-1}(1 - 2\cos(\omega_{2i+1})z^{-1} + z^{-2}).$$

The polynomials $P(z)$ and $Q(z)$ are computed by multiplying $P'(z)$ and $Q'(z)$ with the extra zeros at $z = -1$ and $z = +1$. Finally, in step 230 the filter coefficients are computed by using the following equation:

$$A_m(z) = \frac{P(z) + Q(z)}{2}$$

which defines the relationship between the polynomial $A_m(z)$ and the two inverse polynomials discussed earlier.

3. Please insert the following before the paragraph starting on page 5, line 12:

The invention will be more readily understood after reading the following detailed description taken in conjunction with the accompanying drawing, in which:

B3

FIG. 1 illustrates the growth of intermediate coefficient value experienced by processes in the prior art;

FIG. 2 is a flowchart of a prior art method of computing linear predictive coding filters from line spectral frequency coefficients; and

FIG. 3 is a flowchart depicting a method for calculating an inverse polynomial from line spectral frequency coefficients.

4. Please amend the paragraph starting on page 5, line 12 of the application as follows:

The invention is described further hereinafter, by way of example only, with reference to Fig. 1, ~~the accompanying drawing~~ which is a graphical representation of the intermediate coefficient growth experienced in the prior art and in an example polynomial $Q(z) = 1 - z^{-2N}$.

B4

5. Please amend the paragraph starting on page 5, line 18 of the application as follows:

It is assumed that the original polynomial is reconstructed by combining the zeros with increasing ω_i. The maximum value of the largest coefficient during the recomputation procedure is plotted in Fig. 1 ~~the accompanying drawing~~. Note that the Y axis is logarithmic. For large order *N* the intermediate values of some of the coefficients become very high.

B5

6. Please amend the paragraph starting on page 5, line 25 of the application as follows:

As an example, and for $Q(z)$ with *m* is even, in step 310 of Fig. 3 the following ordering of the polynomials is used:

B6

$$v_0[0] = 1 - z^{-1}$$

$$v_0[1] = 1 - 2\cos\omega_1 z^{-1} + z^{-2}$$

$$v_0[2] = 1 - 2\cos\omega_3 z^{-1} + z^{-2}$$

$$v_0[m_q] = 1 - 2\cos\omega_{2*m_q-1} z^{-1} + z^{-2}$$

7. Please amend the paragraph starting on page 6, line 8 of the application as follows:

In step 320, ~~the first step~~ the polynomials are combined two by two. Polynomial *i* is combined with polynomial $[m_q\text{-}i]$, this gives four intermediate polynomials $v_i[i]$:

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$$v_1[0] = v_0[0] \cdot v_0[6]$$

$$v_1[1] = v_0[1] \cdot v_0[5]$$

$$v_1[2] = v_0[2] \cdot v_0[4]$$

$$v_1[3] = v_0[3]$$

8. Please amend the paragraph starting on page 6, line 18 of the application as follows:

In step 330, the ~~The~~ product $v_2[0].v_2[1]$ gives the final result:

B8

$$v_3[0] = v_2[0] \cdot v_2[1]$$

9. Please amend the Abstract of the Disclosure on page 10, line 1 of the application as follows:

The present invention provides for a method of determining filter coefficients from Line Spectral Frequencies by ~~comprising~~ recomputing $P(z)$ and $Q(z)$ polynomials and ~~comprising~~ calculating the ω_i coefficients, characterised by the steps of ordering the polynomials in a series and reducing the number of polynomials in ω_i in the ~~said~~ series by combining the polynomials in ω_i two by two in a manner so as to arrive at two polynomials in ω_i and determining the product of the ~~said~~ two polynomials.

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